

In the Claims

1. A method for recovering texture of a textured article comprising the steps of:
 - 5 first creating on a surface of the article a high temperature stable surface coating; and
 - second performing a solution heat treatment on said article, thereby maintaining said thermally stable surface coating
 - 10 and keeping a textured microstructure.
2. The method according to claim 1, wherein said article is made from a superalloy.
- 15 3. The method according to claim 2, wherein said superalloy is nickel-based.
4. The method according to claim 2, wherein said superalloy is cobalt-based.
- 20 5. The method according to claim 3, wherein a γ -phase and a γ' -phase are present in said superalloy and wherein the temperature of said solution heat treatment is at least the solution temperature of the
- 25 γ' -phase.
6. The method according to claim 2, wherein said solution heat treatment is performed with a temperature above 1100 °C.
- 30 7. The method according to claim 2, wherein said solution heat treatment is performed with a temperature above 1150 °C.
- 35 8. The method according to claim 2, wherein said solution heat treatment is performed with a

temperature above 1200 °C.

9. The method according to claim 1,
wherein said article is a gas turbine blade.

5

10. The method according to claim 1,
wherein said surface coating is an aluminide coating.

11. The method according to claim 1,
10 wherein said surface coating is an oxide film or scale
generated by oxidation of the surface.

12. The method according to claim 10,
wherein said aluminide coating is provided by a chemical
15 vapor deposition process.

13. A method for refurbishing a gas turbine blade made from a
textured superalloy body coated with a protective coating,
the method comprising the steps of:
20 coating a surface of said body with a high temperature
stable surface coating, thereby covering said protective
coating;
performing a solution heat treatment on the body, thereby
maintaining said thermally stable surface coating;
25 removing jointly said surface coating and said protective
coating; and
providing a second protective coating on said body.

14. The method according to claim 13,
30 wherein a γ -phase and a γ' -phase are present in said
superalloy and wherein the temperature of said solution
heat treatment is at least the solution temperature of the
 γ' phase.

35 15. The method according to claim 13,
wherein said solution heat treatment is performed with a

temperature above 1100 °C.

16. A method for refurbishing a gas turbine blade made from a textured superalloy body coated with a protective coating, the method comprising the steps of:
removing the protective coating;
coating a surface of said body with a high temperature stable surface coating;
performing a solution heat treatment on said body, thereby maintaining said thermally stable surface coating;
removing the surface coating; and
providing a second protective coating on said body.
17. The method according to claim 15,
wherein a γ -phase and a γ' -phase are present in the superalloy and wherein the temperature of said solution heat treatment is at least a solution temperature of the γ' -phase.
18. The method according to claim 15,
wherein said solution heat treatment is performed with a temperature above 1100 °C.
19. The method according to claim 1, 13 or 16,
wherein the textured article is a single crystal article.
20. The method according to claim 1, 13 or 16,
wherein the textured article is a directionally solidified article.
21. The method according to claim 1,
wherein said surface is applied with an appropriate surface coating.
22. The method according to claim 1,

wherein the surface layer is applied to a region which has been newly built up, in particular has been produced by build-up welding.

5 23. The method according to claim 1,
 wherein the surface layer is applied to a region which
 surrounds a repaired crack.

 24. The method according to claim 1,
10 wherein a metallic surface layer, in particular of nickel
 or cobalt is used.

 25. The method according to claim 24,
 wherein the metallic layer is applied by electroplating.
15

 26. The method according to claim 24,
 wherein the surface layer is applied by cold gas spraying.

 27. The method according to claim 24, 25 or 26,
20 wherein the surface layer is removed by means of an acid
 treatment.

 28. A method for refurbishing a gas turbine blade made from
 a textured superalloy body coated with a protective
25 coating, the method comprising the steps of:
 coating a surface of said body with a high
 temperature stable surface coating, thereby covering said
 protective coating;
 performing a solution heat treatment on the body
30 wherein a γ -phase and a γ' -phase are present in said
 superalloy and wherein the temperature of said solution
 heat treatment is at least the solution temperature of the
 γ' phase, thereby maintaining said thermally stable
 surface coating;
35 removing jointly said surface coating and said
 protective coating; and

providing a second protective coating on said body,
wherein grain recrystallization is suppressed by providing
bulk conditions which assure a higher temperature
threshold for grain recrystallization.

5

29. A method for refurbishing a gas turbine blade made from
a textured superalloy body coated with a protective
coating, the method comprising the steps of:

removing the protective coating;

10

coating a surface of said body with a high
temperature stable surface coating;

15

performing a solution heat treatment on said body
wherein a γ -phase and a γ' phase are present in the
superalloy and wherein the temperature of said solution
heat treatment is at least a solution temperature of the
 γ' -phase, thereby maintaining said thermally stable
surface coating;

removing the surface coating; and

20

providing a second protective coating on said body,
wherein grain recrystallization is suppressed by covering
areas with said surface coating.

30. A method for recovering texture of a textured article
which is made from a superalloy, comprising the steps of:

25

creating on a surface of the article a high
temperature stable surface coating; and

30

performing a solution heat treatment on said article
wherein a γ -phase and a γ' -phase are present in said
superalloy and wherein the temperature of said solution
heat treatment is at least the solution temperature of the
 γ' -phase, thereby maintaining said thermally stable
surface coating, restoring the microstructure of the
textured article, and suppressing grain recrystallization
by providing bulk conditions which assure a higher
temperature threshold for grain recrystallization.

35

31. The method according to claim 30, wherein said article is a gas turbine component.

5 32. The method according to claim 31, wherein said gas turbine component is a blade or a vane.

10 33. The method according to claim 30, wherein said superalloy is cobalt-based with precipitations or carbides that provide a strengthening mechanism similar to a γ -phase in Nickel based alloys.